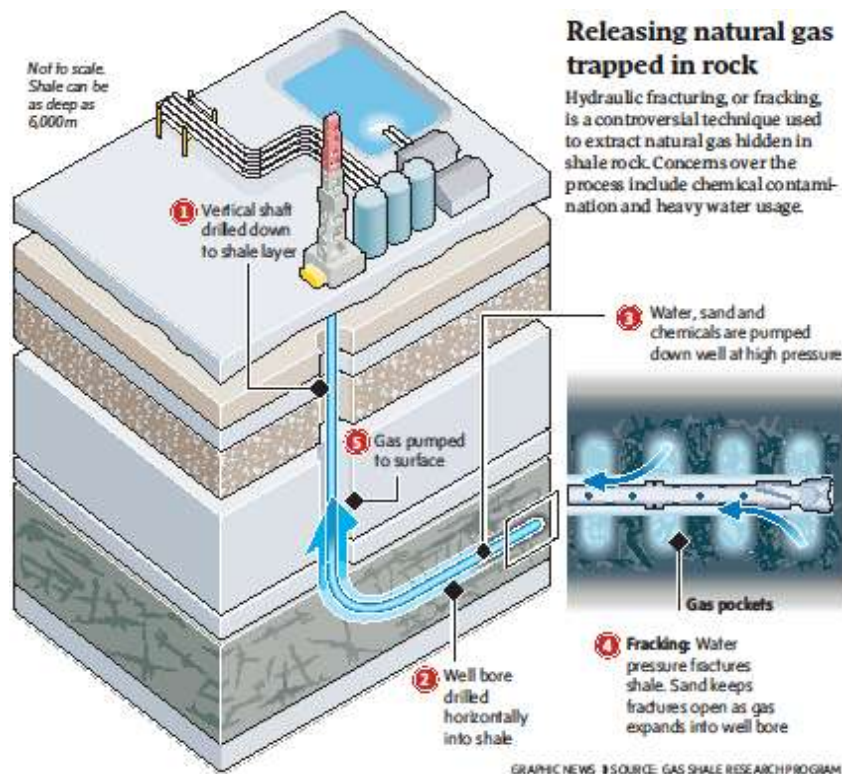


Fracking

"The best evidence indicates widespread contamination of drinking water wells within 1 kilometre of gas wells, and the rate of venting and leakage of methane to the atmosphere is sufficient to give shale gas a larger greenhouse gas footprint than any other fossil fuel." – Robert Howarth, professor of Ecology and Environmental Biology at Cornell University.

What is Fracking?

Hydraulic fracturing, or fracking, is the procedure of creating fractures in shale, coalbed and tight-sand formations by injecting fluid (such as water, oil, or propane) into cracks to force them further open. This enlarges fissures which allow more oil and gas (methane) to flow out of the rock and into the wellbore. From there, the oil and gas can be extracted. Fracking has made the difference between a well being economically viable or not. This fracking process has been a means of increasing well production since the late 1940s. Fractures can also exist naturally in formations, and both natural and man-made fractures can be widened by fracking. As a result, more oil and gas can be extracted from a given area of land. An unconventional well can be fracked up to 14 times, using 10 million to 70 million litres of water.



Releasing natural gas trapped in rock;

http://www.fnehin.ca/site.php/news/oil_industry_backs_more_rules_for_fracking/

What is in the Fracking Fluid?

Water is usually the primary agent used for fracking but also included are potentially toxic substances such as diesel fuel (which contains benzene, ethylbenzene, toluene, xylene, and naphthalene),

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2-butoxyethanol, polycyclic aromatic hydrocarbons, methanol, formaldehyde, ethylene, glycol, glycol ethers, hydrochloric acid, and sodium hydroxide. The other principal ingredient used is sand. In general, the chemicals used in fracking are proprietary formulae and industry has not been forthcoming in disclosing that information.

Alternatives to Fracking Using Water

Propane, butane and oil are sometimes used for fracking instead of water. Opponents of this technique cite dangers due to the flammable and explosive nature of natural gas or propane. Also, opponents cite dangers due to other chemicals such as foaming agents (peroxide, for example) and biocides also being used. Additionally, the process of fracking with any agent brings with it the production of 'deep brines' in the gas well which can contaminate groundwater. Proponents of the alternative fracking technique claim that it does not create wastewater that may contaminate drinking water supplies and most of the natural gas or propane used is recovered and either sold or reused for further fracking operations. A Canadian company, GasFrac Energy Services, is a leader in the industry in the use of propane in fracking operations.

What are the Environmental Consequences of Fracking?

One of the most detrimental aspects of fracking is the effect on the [groundwater](#). The chemicals used in fracking and the gas which is being extracted have been found to leak into water supplies. High levels of ethane, methane, chromium-6 and benzene have been found in some wells near fracking operations. Officials from the oil and gas industry have stated that there are no proven cases of water contamination in the United States but a study by the Environmental Protection Agency in 1987 suggests otherwise. The study shows that water wells near a 1982 fracking operation by Kaiser Petroleum with a 4000' deep gas well had been contaminated. Fracking uses millions of litres of source water. Fracking can lower groundwater levels and reduce water pressure in nearby aquifers. This allows methane gas (a component of natural gas) to accumulate in gas bubbles that surface in shallow bodies of water or in household pipes. Methane gas is colourless and odourless and can cause explosions. There are documental cases where homeowners living near a fracked well can literally light their water on fire because of methane gas bubbles in their pipes. However, industry leaders say that fracking has been used for over 60 years in Kansas and there have been no documented cases of water contamination in the United States.

Fracking Poses Serious Health Risks

A four billion gallon fracking project requires 80 tons (200,000 gallons) of chemicals. These chemicals are brought through communities where they are stored and present potential spill risks. Often, companies do not share information about the specific combination and quantities of chemicals even in the event of a spill, as this information is considered proprietary. Many of the chemicals used in fracking are associated with skin, eye and respiratory problems, harm to the gastrointestinal system, and with affecting the brain and nervous system.

Industry Reponse

Late last year [Halliburton](#) disclosed the substances that are contained in the hydrofracking (fracking with water) procedure to the federal government. With their process 98.47% of the components are water and sand. The remainder were surfactants and acids used to help the process work better. Formaldehyde is on the list, but a majority of the other 1.53% can be found in household items like

shampoos, foods and sunblock.

Is the Government Regulating Fracking?

In the United States a number of lawsuits have been launched against companies using fracking and in Canada well water is being monitored. Canadian Association of Petroleum Producers (CAPP) has endorsed the disclosure of fracking formulae ingredients. In British Columbia this year the government is starting a registry that will publically disclose the location of fracking operations and the chemicals being used. In September 2011, Federal Environment Minister Peter Kent announced two separate reviews (Council of Canadian Academies and Environment Canada) on the science and use of hydraulic fracturing by the energy industry in Canada and its impact on the environment.

Government Incentives to Industry

The B.C., Alberta and Saskatchewan governments have promised low royalties and often lax environmental regulations to encourage fracking companies to start projects.

Where is this Happening in Canada?

The most active fracking region is Southern Saskatchewan's Bakken region. Fracking projects are at various stages of exploration and drilling in British Columbia and Alberta in the Montney Shale and the Horn River Shale. Massive shale explorations and developments are also being planned in Quebec, Nova Scotia and New Brunswick where drilling is already underway in communities such as Penobsquis and Elgin. Exploration is also taking place in Ontario and Manitoba.

The Safe Drinking Water Foundation has educational programs that can supplement the information found in this fact sheet. Operation Water Drop looks at the chemical contaminants that are found in water; it is designed for a science class. Operation Water Flow looks at how water is used, where it comes from and how much it costs; it has lessons that are designed for Social Studies, Math, Biology, Chemistry and Science classes. Operation Water Spirit presents a First Nations perspective of water and the surrounding issues; it is designed for Native Studies or Social Studies classes. Operation Water Health looks at common health issues surrounding drinking water in Canada and around the world and is designed for a Health, Science and Social Studies collaboration. Operation Water Pollution focuses on how water pollution occurs and how it is cleaned up and has been designed for a Science and Social Studies collaboration. Operation Water Biology teaches high school science students about biological water treatment, a more effective and environmentally friendly water treatment method. Operation Community Water Footprint allows students or other community members to calculate the amount of source water which is required in order to produce one litre of treated drinking water. They can then add their data to our "Put Your Community on the Map" application. To access more information on these and other educational activities, as well as additional fact sheets, visit the Safe Drinking Water Foundation website at www.safewater.org.

Resources:

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